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&

Executive Curator
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Giant Fossil Reptiles from the Late Cretaceous of Antarctica Their Interpretative Role in Climate and Dispersal

ABSTRACT

Recent expeditions to the southernmost continent have resulted in discoveries of fossil reptiles, including mosasaurs, plesiosaurs, and dinosaurs. Weather, distances, equipment, and limited personnel made recovery of these fossil reptiles exceedingly difficult. High winds, ice, and snow nearly stopped the recovery, but numerous specimens provided important glimpses into the Age of Dinosaurs on the Antarctic Peninsula.

A variety of mosasaurs and plesiosaurs indicate, that even in the marine realm, endemism occurred during the Late Cretaceous, approximately 65 to 70 million years ago. The environment in which these fossils were entombed was a shallow embayment in which numerous baby and juvenile marine reptiles lived until they could face the dangers of the open ocean.

Volcanism appears to have played a significant role in the deaths and preservation of many of these reptiles. In addition to the marine reptiles, dinosaur remains were washed into the shallow sea. One dinosaur, a carnivorous type, exhibits very primitive features, suggesting that Antarctica served as a refugium for some reptiles. However, a hadrosaur indicates that these herbivorous dinosaurs dispersed from North America through South America to Antarctica. This dispersal may also explain how marsupial mammals derived from North America may have eventually dispersed to Australia before the continents drifted apart.

[Note from Web Manager:

http://www.nsf.gov/news/news_summ.jsp?cntn_id=108195

For excellent photos of giant fossil reptiles and one of Dr. Martin's expeditions.]

BIOGRAPHICAL DATA James E. Martin



EDUCATION:

B.S. 1971 SD School of Mines and Technology (Geology, with honors)M.S. 1973 SD School of Mines and Technology (Geology/Paleontology-3.8)

Ph.D. 1979 University of Washington, Seattle (Geology-4.0)

PROFESSIONAL ACCREDITATION:

Certified Professional Geologist, American Institute of Professional Geologists Certification Number 7367

Wyoming Professional Geologist Wyoming Board of Professional Geologists Registration Number PG-357

Licensed Geologist
State of Washington
Certification/License Number 1368

PROFESSIONAL EXPERIENCE:

1979-Present-Executive Curator, Museum of Geology; Professor of Geology and Geological Engineering

2007-Present-Adjunct Professor, University of Louisiana, Lafayette

1999-2008-Consultant; Bureau of Land Management: Supervised GPS surveys and collection

of Pleistocene and Miocene fossils

2005-Consultant: SD Geological Survey: Undertook mid-Tertiary stratigraphic studies

2002-Consultant; Yakima Valley Museum: Engaged in planning for exhibits in newly renovated museum

2002-Consultant; R.M. Rangle Corporation: Mitigated Holocene Bison cranium from construction site

2001-2002-Consultant; US Corps of Engineers: Managed land evaluation for natural resources (sabbatical leave)

2000-2001-Consultant; Parsons Engineering Inc.: Managed paleontological survey of former

Badlands Bombing Range

1998-Consultant; SD Geological Survey: Managed production of the geological map

for the state of South Dakota

1994-1997-Consultant; John Day Fossil Beds National Monument: Guided the paleontological survey of Miocene deposits

1994, 1998-Consultant; Bureau of Land Management: Engaged in paleontological management for Cenozoic sites in Oregon

1992-1993-Geologist/Paleontologist; Bureau of Land Management: Advisor for paleontological

resources and engaged in formulation of paleontological management plan for OR/WA region (Sabbatical Leave)

1985-1993-Research Geologist; Western Field Office, South Dakota
Geological Survey: Engaged in geological studies, including the state
geological map of South
Dakota

1979-1988-Director; Black Hills Natural Sciences Field Station, SD School of Mines: Directed

the entire program, including administration to teaching

Fall, 1989-1990-Consultant; Archaeological Research Center: Managed geomorphological and stratigraphical studies of terrace deposits

Fall, 1990-Consultant; McIlnay & Associates, Inc.: Supervised the paleontological impact

evaluation of Late Cretaceous Lance Formation

Spring, 1989-Consultant; Dakota Research Services: Directed geomorphological

studies of archaeological sites

Spring, 1985; Spring 1988-Consultant; Wind Cave Natural History Association: Managed

paleontological investigations of Oligocene and Quaternary deposits of Wind Cave National Park

Fall, 1985-Consultant; SD State Archaeological Research Center: Engaged in geological

studies of a Paleo-Indian quarry in the northern Black Hills

Fall, 1983-Consultant; Mobil Oil Company: Engaged in environment of deposition studies

of the Pennsylvanian-Permian Minnelusa Formation

Spring, 1983-Consultant; Georgia Southern University Museum: Advised erection of a

free-mount of a large marine reptile

Fall, 1982-Consultant; Exxon Oil Company: Engaged in study of geological contact

relationships of late Paleozoic formations, eastern Black Hills

1977-1979-Curatorial Assistant; Thomas Burke Memorial Museum, University of

Washington: Directed collection, preparation and display of Cretaceous and Tertiary fossils

Fall, 1977-Consultant; Bureau of Land Management, Lake County, OR: Engaged in

paleontological impact survey of Pleistocene localities

Summer, 1977-Consultant; Shannon and Wilson Geotechnical Consultants, Seattle, WA:

Engaged in fault studies in the eastern Cascade Mountains to evaluate earthquake hazards

Summer, 1975-Consultant; Washington Public Power Supply System, Richland, WA:

Engaged in site evaluation for nuclear power plants

PROFESSIONAL SOCIETY AFFILIATIONS:

American Association for the Advancement of Science American Institute of Professional Geologists Wyoming Board of Professional Geologists Society of Vertebrate Paleontology Society for Preservation of Natural History Collections South Dakota Academy of Science (Past-President)

SPECIAL HONORS:

Royal Geographical Society of London/Discovery Channel Europe International Discovery of the Year Award, 1999

Elected President, SD Academy of Science, 1989-1990

Invited Press Conference, National Science Foundation, National Press Club, 2004

Distinguished Alumnus, South Dakota School of Mines and Technology, 2004

Invited Press Conference, National Science Foundation, National Press Club, 2006

Inducted into South Dakota Hall of Fame, 2008

HONORS AND ACCOMPLISHMENTS:

National Science Foundation, Panel Member, Biological Research Collections Program, 2004

National Geographic Society Grants (3 awards)

National Science Foundation Grants (3 awards)

Bureau of Land Management Cooperative Agreements (19 awards)

US Forest Service Cooperative Agreements (5 awards)

US Army, Corps of Engineers Cooperative Agreements (5 awards)

US National Park Service Cooperative Agreements (7 awards)

US Bureau of Reclamation Cooperative Agreement (1 award)

COGEOMAP (US Geological Survey) Grants (7)

Dinosaur Society Grant

Agenda for Excellence Grants (2), SD School of Mines and Technology Faculty Research Grants (3), SD School of Mines and Technology

Corporation Grants (2), University of Washington

Advisory Committee, North American Research Group

Invited Contribution, GEOTIMES, 2005

Invited Participant, One of three North Americans in joint US/Argentinean Expedition to

Antarctica, 1998-99, 2003, 2005

Paleontology Task Force Member, State of South Dakota

National Ethics Committee, Society of Vertebrate Paleontology (4 years)

Government Laision Committee, Society of Vertebrate Paleontology (3 years)

Research Associate, San Bernardino County Museums

Symposium Organizer, Geological Society of America, 2004

Symposium Organizer, SD Academy of Science, 2004

Invited Symposium, North American Paleontological Convention, 2001

Invited Symposium, Society of Vertebrate Paleontology, 1994 Annual Meeting

Invited Symposium, Geological Society of America, Rocky Mountain Section, 1994

Annual Meeting

Invited Symposium, Geological Society of America, Rocky Mountain Section, 1995

Annual Meeting

Invited Symposium, Society of American Archaeology, 47th Annual Meeting

Invited Symposium, Plains Anthropological Conference, 1989 Meeting Invited Symposium, ND Academy of Science, 78th Annual Meeting

Invited Symposium, Joint Meeting, ND and SD Academies of Science, 1988

Invited Symposium, Annual Meeting, Geological Society of America, 2008 Invited Moderator, Society of Vertebrate Paleontology, 42nd Annual leeting

Invited Moderator, SD Academy of Science, 71st, 74th, 75th, and 87th Annual Meetings

Invited Papers, *Papers in Vertebrate Paleontology Honoring Robert W. Wilson*, Carnegie

Museum Natural History (2)

Invited Papers, Decade of North American Geology, Geological Society of America (2)

Invited Papers, Royal Geological Society of London (2)

Invited Field Trip Leader, Society of Vertebrate Paleontology, Tertiary Deposits of SD,

1985

Invited Field Trip Leader, Wyoming Geological Association, Penn-Permian Deposits of

Black Hills, 1988 Invited Field Trip Leader, SD Academy of Science, 2004

FIELD EXPERIENCE: Consecutive years since 1967 in North America: Antarctica in 1997-1998, 2003, 2005; Argentina in 1997-1998; Europe in 2002; and Australia in 2000-2005.

Extensive field experience in collecting and documenting fossil vertebrates from Jurassic, Cretaceous, Oligocene, Miocene, Pliocene, Pleistocene, and Holocene sediments.

Additional experience in collecting vertebrate remains from Pennsylvanian and Eocene sediments.

Experience in mapping rocks from nearly all geological ages.

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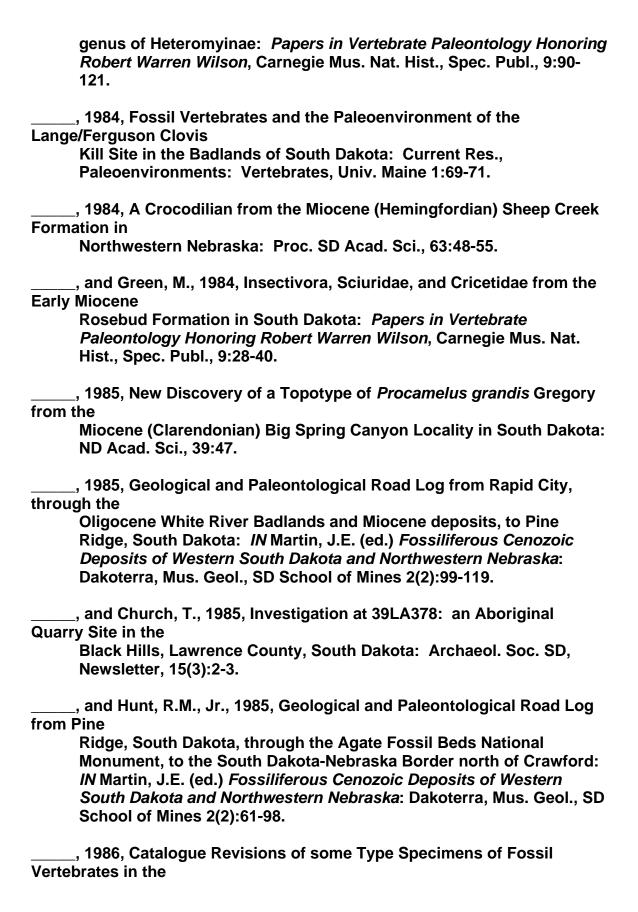
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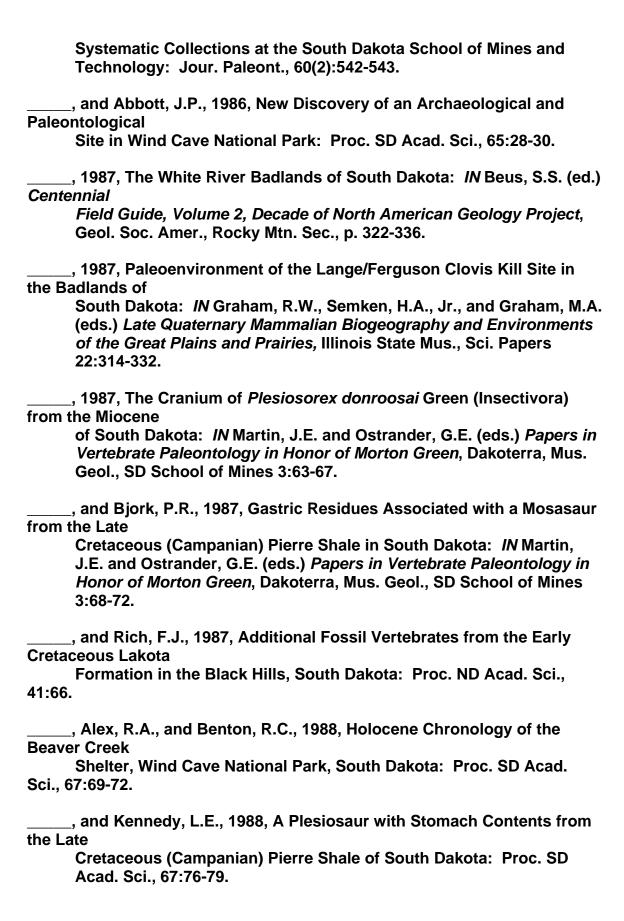
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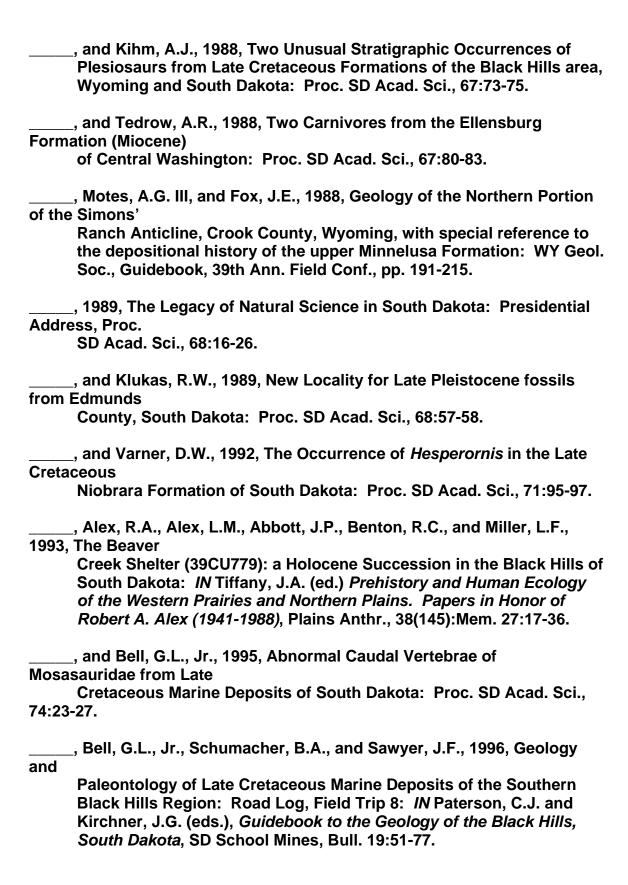
submitted Martin, James E., 1976, Small Mammals from the Miocene Batesland Formation of South Dakota: Univ. Wyoming, Contr. Geol., 14:69-98. __, 1978, A New and Unusual Shrew (Soricidae) from the Miocene of Colorado and South Dakota: Jour. Paleont., 52(3):636-641. _, and Rozdilsky, J., 1980, Occurrence of a Porcupine Quill in the Radius of a Marmot: Murrelett 6:80-81 ____, 1981, Contents of Coprolites from the Hemphillian of Northern Oregon and their significance in paleoecological interpretations: Proc. SD Acad. Sci., 60:105-115. __, 1982, Coprolites from the Pierre Shale in South Dakota: Proc. SD Acad. Sci., 61:171. , 1983, Composite Stratigraphic Section of the Tertiary Deposits in **Western South** Dakota: Dakoterra, Mus. Geol., SD School of Mines, 2(1):1-8. , 1983, Additions to the Early Hemphillian Rattlesnake Fauna from Central Oregon: Proc. SD Acad. Sci., 62:23-33. , 1983, Bizarre Incisor Malocclusion and Morphological Adjustment in Marmota (Mammalia: Rodentia): Tebiwa, Jour. Idaho Mus. Nat. Hist., 20:17-21. __, Barnosky, A.D., and Barnosky, C.W., 1983, Fauna and Flora Associated with the West Richland Mammoth Site from the Pleistocene Touchet beds. south-central Washington: Res. Rpts., Thomas Burke Mem. Wash. State Mus., Univ. Wash., 3:1-61. , 1984, A Survey of Tertiary Species of *Perognathus*, and a

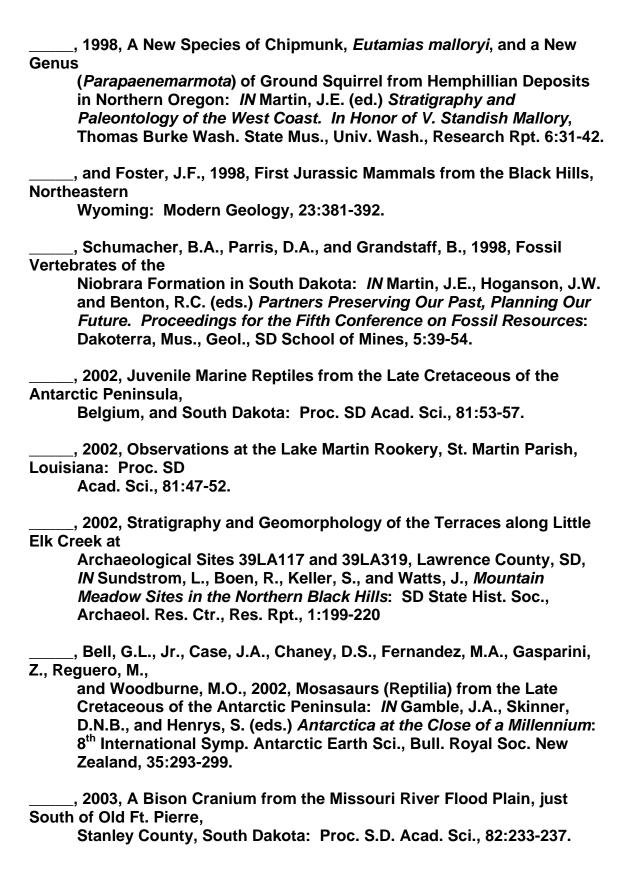
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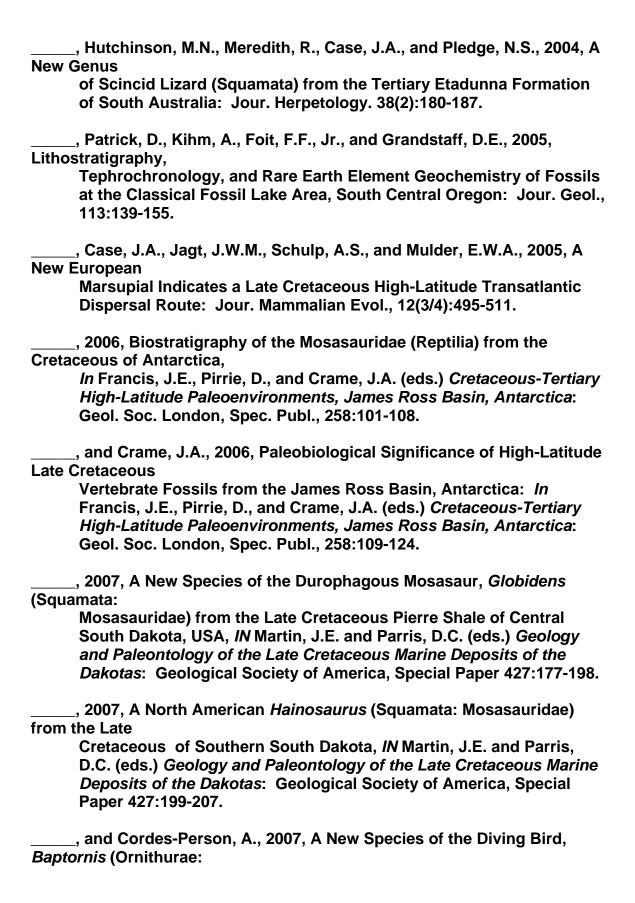
Papers: 56 first author; 32 coauthored=88 publications and 2 in press or











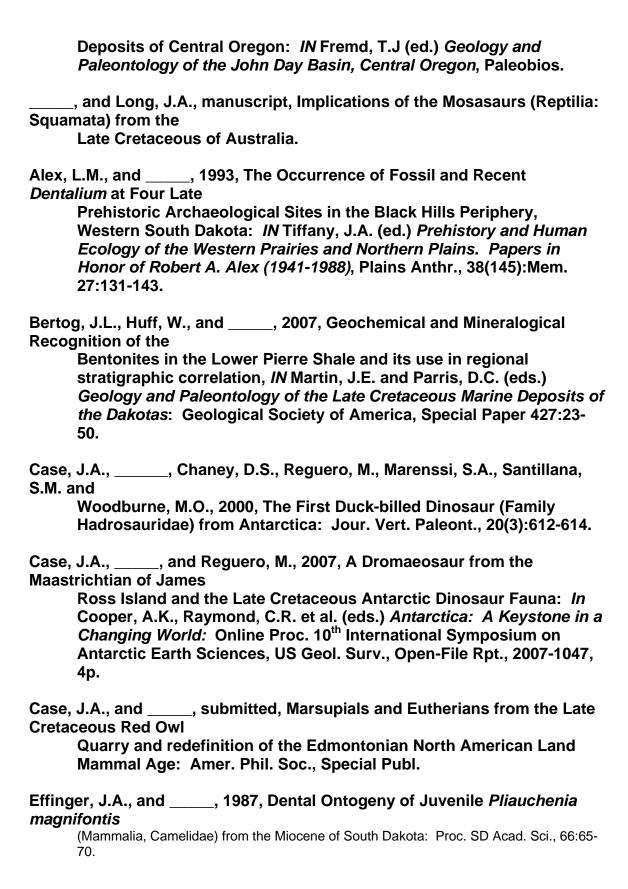
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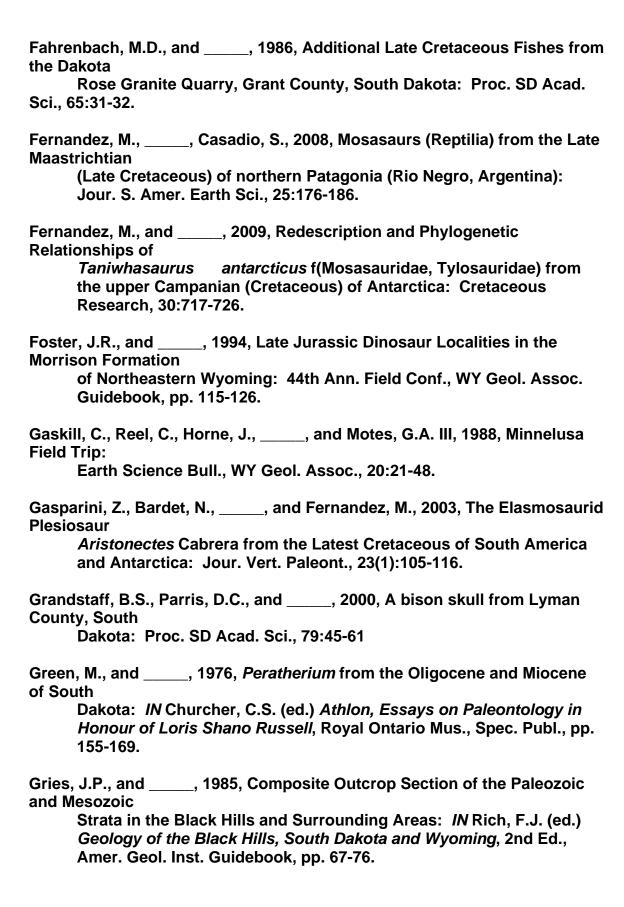
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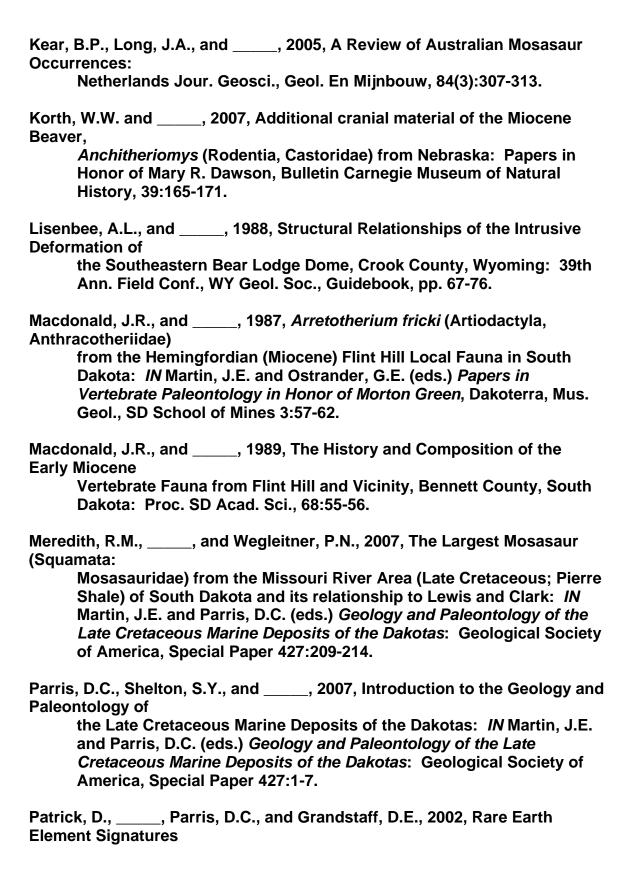
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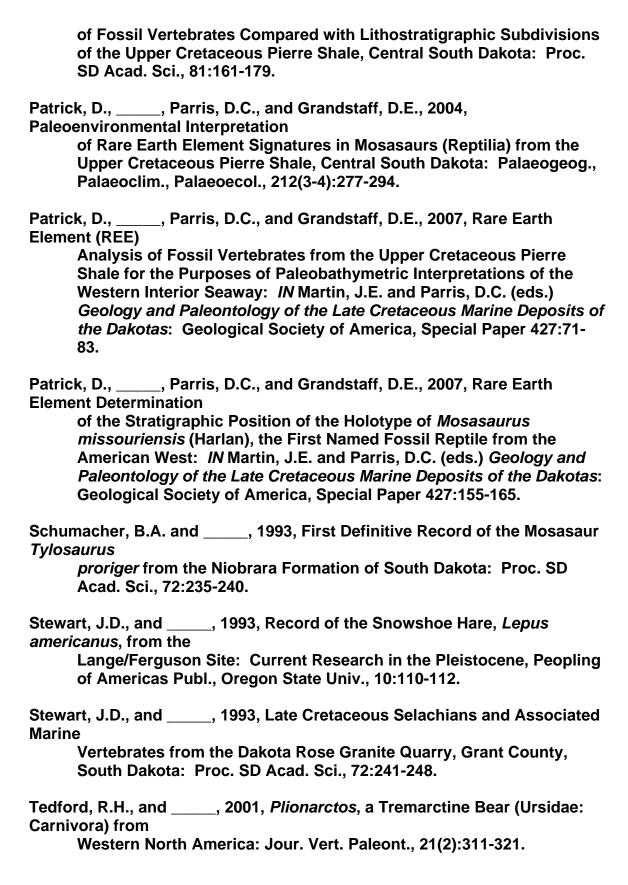
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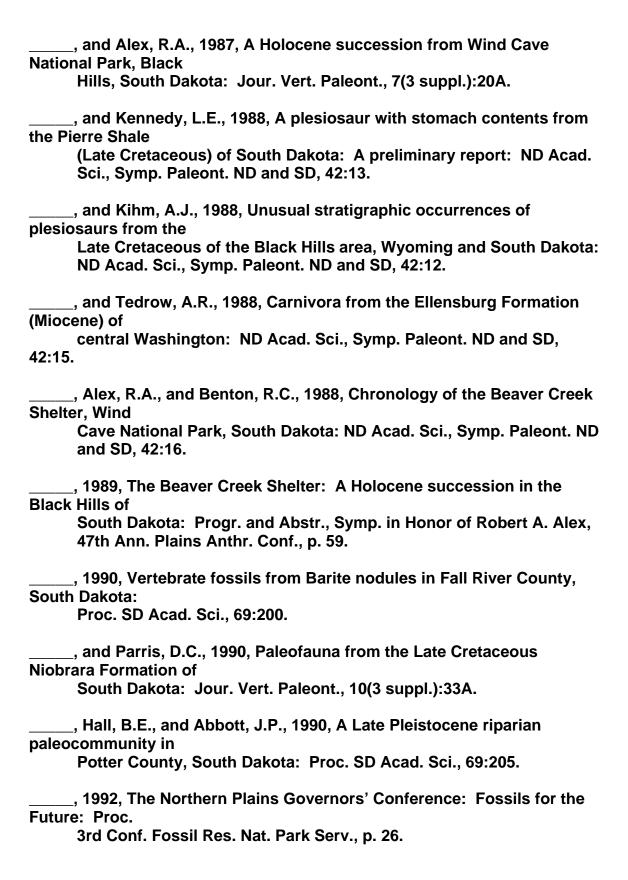


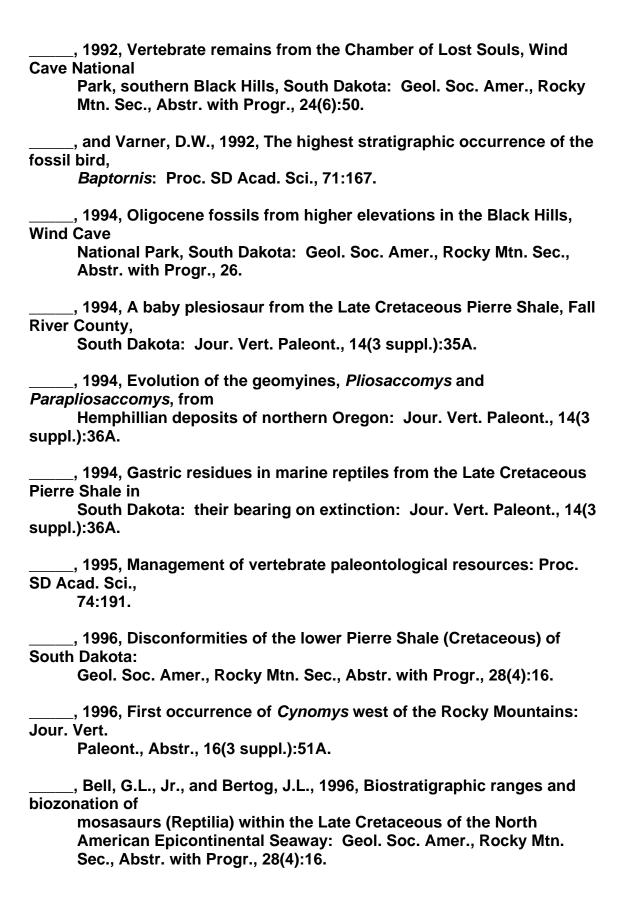


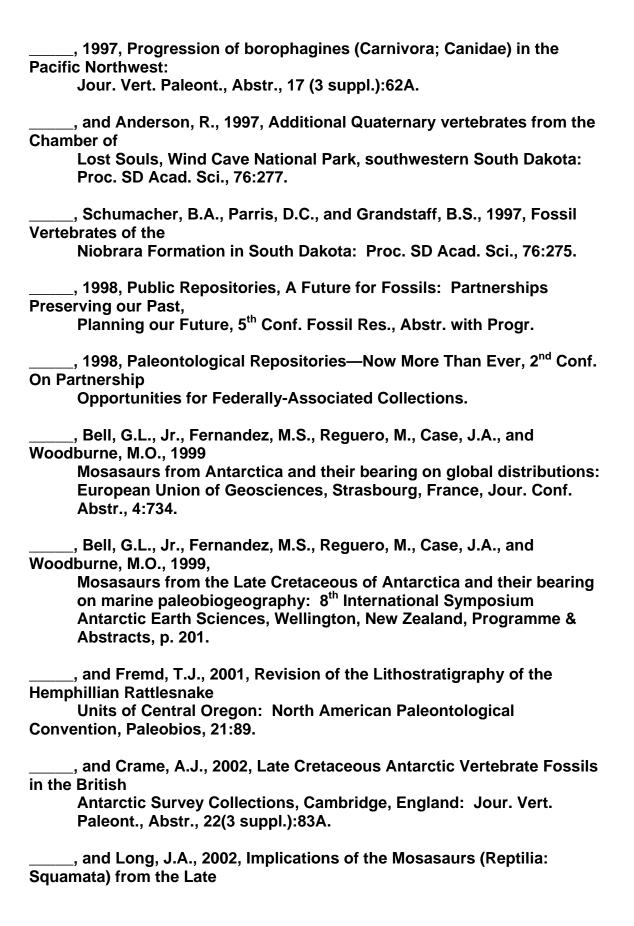


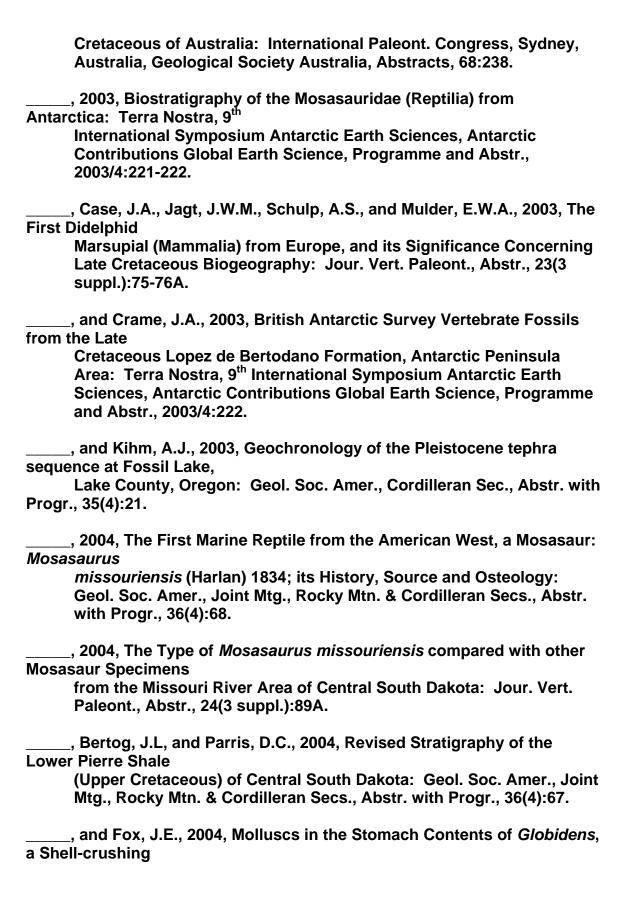
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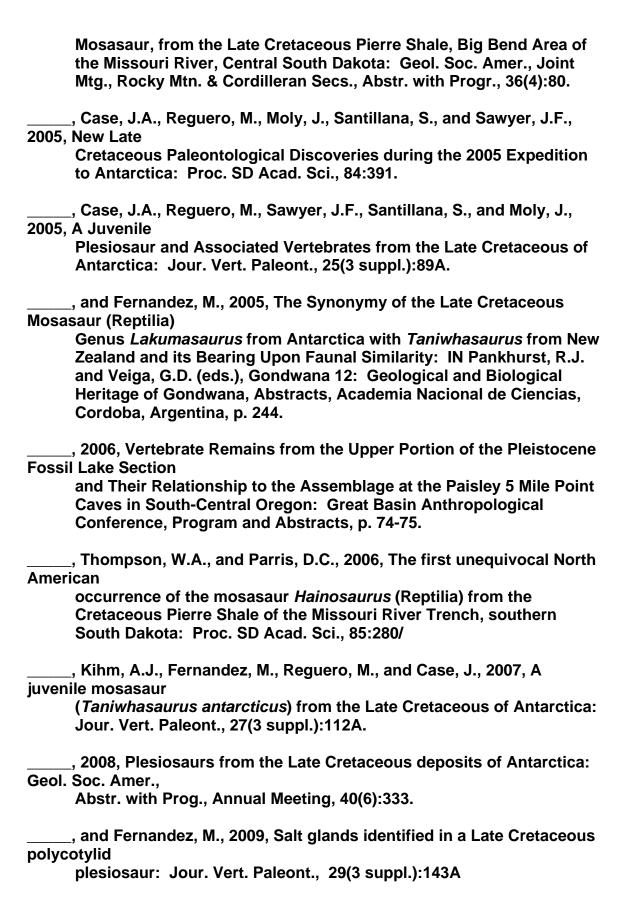
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Amer., Cordineran Sec., Abstr. With Frogr., 11(3).90.
, 1980, Correlation of Hemphillian faunas in the Northwest to those on
Plains: Geol. Soc. Amer., Rocky Mtn. Sec., Abstr. with Progr., 12(6):280.
, 1982, Vertebrate fossils from the Lange/Ferguson (39SH33) Clovis kill site: Soc. Amer.
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, 1982, Mammoth and mice from a Clovis kill site in the Big Badlands of South
Dakota: Geol. Soc. Amer., Rocky Mtn. Sec., Abstr. with Progr.,
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the Badlands of South Dakota and its relationship to the paleoenvironmental succession of the northern Great Plains: ND Acad. Sci., Symp. Papers 40:13.

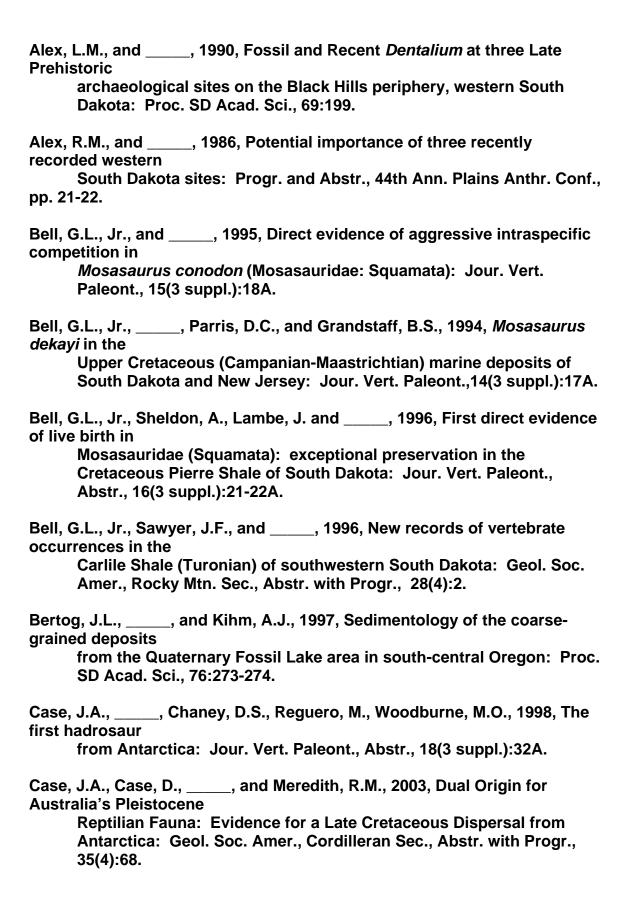












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